

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Dana Alexa Totir et al. Art Unit : 1745
Serial No. : 10/800,905 Examiner : Raymond Alejandro
Filed : March 15, 2004 Conf. No. : 1479
Title : NON-AQUEOUS ELECTROCHEMICAL CELLS

Commissioner for Patents
P.O. Box 1450
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**THIRD DECLARATION OF DANA ALEXA TOTIR, KIRAKODU S.
NANJUNDASWAMY AND MICHAEL POZIN UNDER 37 C.F.R. § 1.131**

1. We are the inventors of the inventions claimed in the above-captioned patent application. The following work was conducted in the United States.

2. Two laboratory notebook pages from a laboratory notebook of Dana Alex Totir are attached. The notebook pages are signed by Ms. Totir and are dated prior to December 3, 2002. The two pages are true and complete copies from the original notebook, except that the dates on the laboratory notebook pages have been whited out and information is highlighted as described below.

3. The laboratory notebook pages demonstrate that electrochemical cells covered by claims 1-5, 8-12, 14-24, 28, 31-35, 39-43, and 45-46 were made and used prior to December 3, 2002.

(a) Some of the information on the notebook pages is highlighted for convenience. See in particular the highlighted information next to "Cell #1" on page 2489-110 and "Cell #2" on page 2489-111. The electrochemical cells were coin cell models that included a plastic housing, a cathode including " β -EMD" (β -electrolytic manganese dioxide) on a "primed Al" (aluminum) current collector. The aluminum current collector in turn was pressed on an "SS grid". SS is stainless steel, and the aluminum current collector thus was in contact with a second metal surface (the stainless steel) different from the surface of the aluminum current collector. The cells included a "Li" (lithium) anode and an electrolyte including "0.05 M" (page 2489-110) or "0.03 M" (page 2489-111) LiBOB. LiBOB is lithium bis(oxalato)borate. Thus, the electrochemical cells described on laboratory notebook pages 2489-110 and 2489-111 include all of the requirements of claims 1-2, 5, 8-12, 31-35, and 45-46.

(b) Laboratory notebook pages 2489-110 and 2489-111 refer to “LiBOB in TDE10” in the highlighted information next to “Cell #1” and “Cell #2”. TDE10 is an internal name for an electrolyte that includes, among other ingredients, lithium trifluoromethanesulfonate. Thus, electrochemical cells on laboratory notebook pages 2489-110 and 2489-111 also include all of the requirements of claims 3 and 4.

(c) The aluminum cathode current collector used in the electrochemical cells on laboratory notebook pages 2489-110 and 2489-111 had a size of at least one dimension greater than 2 millimeters. Thus, the electrochemical cells on laboratory notebook pages 2489-110 and 2489-111 include all of the requirements of claims 14-16.

(d) The electrochemical cells on laboratory notebook pages 2489-110 and 2489-111 were designed to be discharged once and then discarded, and thus are primary electrochemical cells as opposed to secondary (rechargeable) electrochemical cells. Thus, the electrochemical cells on laboratory notebook pages 2489-110 and 2489-111 meet all of the requirements of claims 17-24, 28, and 39-43.

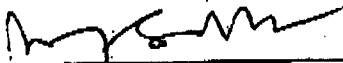
4. We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that those statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Dana Alexa Totir

02/15/08

Date



Kirakodu S. Nanjundaswamy

03/12/08

Date



Michael Pozin

02/14/2008

Date

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All corrosion tests all the time inconsistent (readings very non-a
ccurate range)

Must test in more cells.

Tests:

- All steel cathodes forced in 55 grid in Al contact
- 100, 100 μ atm
- corrosion of 434 cu and of 11 alloy @ 3.87 (n. 3.7)

Impedance measurement with Ag pseudo-reference electrode

3. Electrode all w. Ag (W) working electrode, Li counter
and reference electrode

measured over of Ag electrode w. Li reference is 73800

Corr of Ag (W) w. Li(C) in Ringer's in PC, 10000

CV of Ag (W), Ag (C), Li(C) w. Ringer's / PC, 10000
Ag (W), Ag (C), Li(C) w. Ringer's (PC / Li(C))

To compare the peak potential for Ag (C) and Li (C)
to find out the potential difference.

10000 mAh at 1.5V, 10000 mAh control 1651 732

pressed in 55 grid w. galvanized Ni ring (45)

21000 expand, 0.05 M LiClO₄ in Ringer's prop

1x2 60, 10000 cycle and

10000 mAh (33 mAh)

Measurements

- dt 2110 a1. or - Au(W), Li(C), Ag(C), 1mM LiClO₄ in Ringer's, CV
between 2.7-3.7 V @ 20 mV/sec
- dt 2110 a2. or - Ag(W), Au(C), Li(R), 1mM LiClO₄ in Ringer's - open circuit
experiment to monitor Ag potential w. Li
- dt 2110 a3. or - Au(W), Li(C), Ag(R) - 1mM LiClO₄ in Ringer's w. Ringer's
PCM 6th. 0-0.7 V vs. ref @ 20 mV/sec
- dt 2110 a4. or - Au(W), Li(C), Ag(R) - 1mM LiClO₄ in Ringer's
CV -0.6-0 V vs. ref @ 20 mV/sec
- dt 2110 a5. or - same as above CV 6th. -0.1-0.01 V vs. ref @ 20 mV/sec

Witnessed & Understood by me,

Monahan

Date

Recorded by

Date

Date

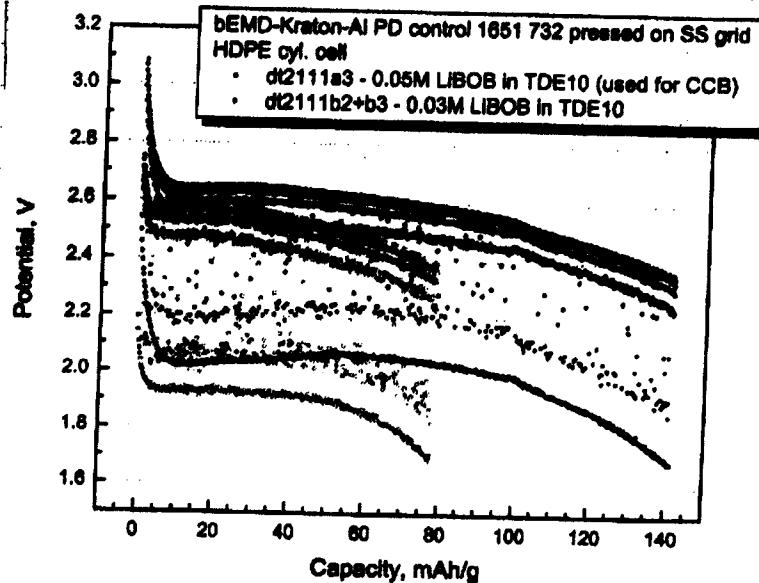
J. A. Monahan

Subject Matter

- dt 2111 a1. or - Cell #1 dissolved in prop -100 - stopped after 170 pulses
NEC 60 @ 3.3 mAh
- dt 2111 a2. or - OCV for 2h (Cell #1)
- dt 2111 a3. or - Cell #1, NEC 60, 3.3 mAh, 600 pulses

Cell #2: β -CVD Kraton a-porous N, PD control 1651 732
pressed on SS grid w. 9 stacked Ni strips 160
deg. Cylindrical 1ml 0.03M LiBOB in TDE10 (pre
1x2.6, 1000g, 1.5h)

- dt 2111 b1. or - open circuit, 2h
- dt 2111 b2. or - NEC 60, 3.3 mAh, 500 pulses
- dt 2111 b3. or - NEC 60, 3.3 mAh, additional 500 pulses
(collected next day)



Witnessed & Understood by me,	Date	Recorded by	Date
<i>Mano</i>		<i>J. D. M.</i>	